



"Express Mail" mailing number: EV478024840US

Date of Deposit July 13, 2004

I hereby certify that this paper and all papers and fees referred to herein are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner for Patents, Box 1450, Alexandria, VA 22313-1450.

Angela L. Boyd

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Robert Ernest Troxler

Group Art Unit: 2636

Serial No.: 10/035,937

Examiner: Trieu, Van Thanh

Filed: December 26, 2001

Docket No.: 1450/2

Confirmation No.: 3607

For: LARGE AREA POSITION/PROXIMITY CORRECTION DEVICE WITH ALARMS  
USING (D)GPS TECHNOLOGY

\*\*\*\*\*

DECLARATION OF PRIOR INVENTION PURSUANT TO 37 C.F.R. § 1.131

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir.

I, Robert Ernest Troxler, hereby declare as follows:

1. I am the sole inventor of the claims of U.S. Patent Application no. 10/035,937 filed December 26, 2001, which relates to devices, systems, and methods for indicating a position of a movable device with respect to a geographical area.
2. I have reviewed Claims 15 and 24 of the subject patent application, and I conceived of the invention defined in those claims at least as early as July 13, 1999, as evidenced by certain pages of Mr. Troxler's Workbook, a copy of which is attached hereto:

3. The pages of Mr. Troxler's Workbook dated prior to July 13, 1999 includes notes describing a movable boundary detection device and related methods and systems as claimed in at least Claims 15 and 24 of the subject patent application. Specifically, the pages describe a GPS-based device.
4. I was the originator of the pertinent subject matter described in the subject Workbook pages of dated prior to July 13, 1999.
5. I worked continuously until the invention was reduced to practice with the filing of U.S. Provisional Patent Application No. 60/258,246 on December 26, 2000.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this Declaration is directed.

By: *Robert Ernest Troxler*  
Robert Ernest Troxler

Date: *July 13, 2004*



CONFIDENTIAL

COPY

(1)

Oct 23, 1997

Conception of the K-9 "Walkright" Electronic  
leash training device.

While talking to Geoff Holden in my kitchen, we agreed that there was a market for just such a device. We were discussing patents and I was asking how alternative uses for current inventions was eligible to receive a patent. I used the dog leash connector as an example, and Geoff further encouraged and enhanced the idea.

We immediately went to Town to buy an existing electronic collar to modify for our testing. We purchased a Radio systems UL-250 for about \$50 for this purpose. Geoff sketched out a possible switch mechanism, and I decided the electronics of the collar we then took the collar to a place with the house that had Volts and an antenna source to power the collar. The idea is to remove the RF electronics and just use his switch to apply the proper voltage to "ring" the collar. We failed at our first attempt.

Read & Understood by John T. Wright and Geoff Holden

②

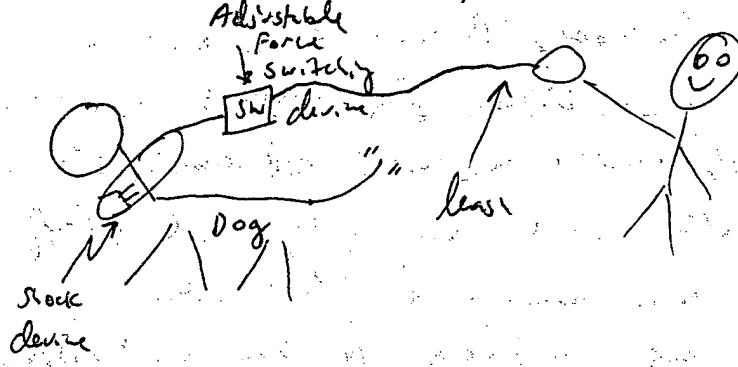
10-

27-97

I

Description of device:

The "shock" collar will be used in a design such that when a predetermined force of the dog pulls his master while walking, a corrective signal is applied to the dog through electric shock, Audible sound, or ultra sonic output.



BEST AVAILABLE COPY

Not

Kelton & Chase

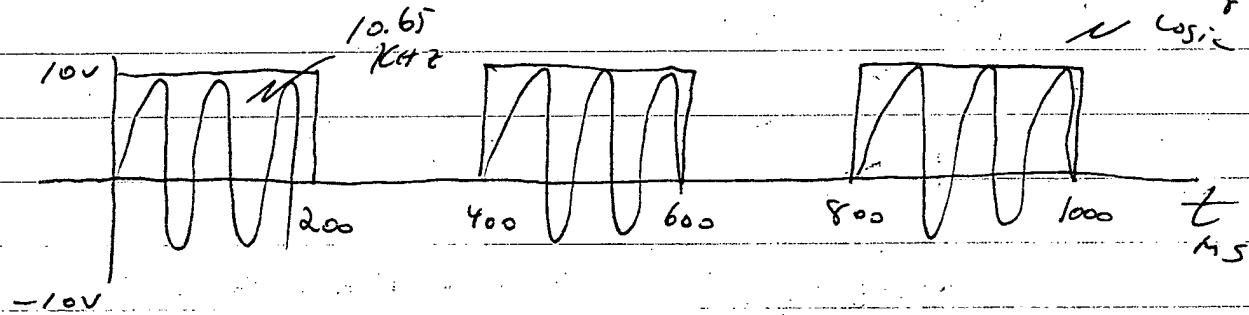
10-30-97

I E-mailed CCutshaw@Radiosys.com

to ASK how the Syst worked. Was it  
Coded and modulated I asked? The answer was  
that the UL-250 was coded and modulated.  
But I knew they got the wrong.

The Caller operates at 10.65 kHz and to "ring" it,  
one must pulse the Transmitter 3 times/sec.

If a 10Ω load were on the transmitter, the  
signal might look like this



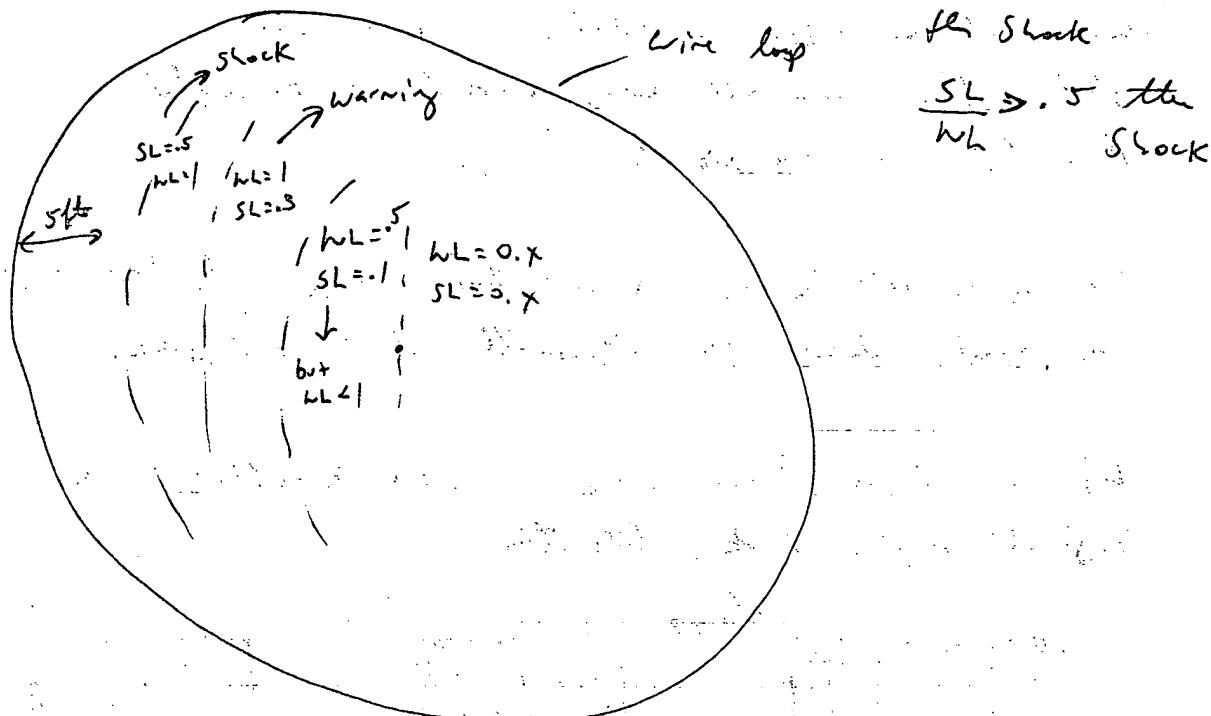
Truth: for the warning signal, the peak voltage might  
be at 10V. However, the shock voltage output  
would be less. Hence, the field intensity is greater  
for the warning to reach further into the yard.

Possibly, the Caller is smart enough to look at  
two Amplitude triac comparators op amp and  
not trip the proper receiver response until the  
Voltage were high enough. Could be very a ratio

(4)

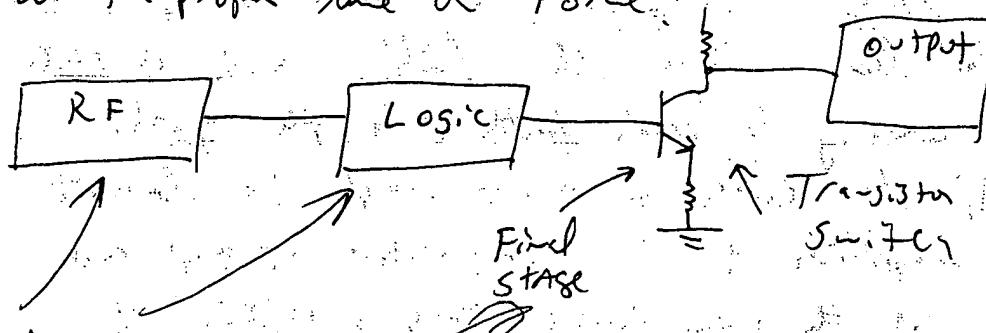
In the logic along w/ peak.

if warning level  $\geq 1$  Vpp  $\Rightarrow$  NL  $\Rightarrow$   $SL = \text{Shock level} = V_2$  warning level



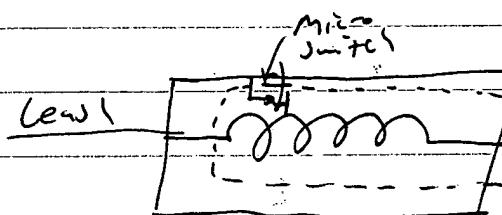
BEST AVAILABLE COPY

At any rate, we will not use the RF Section or logic. All we need to do is to put a control voltage to the trigger port at the proper time or force.



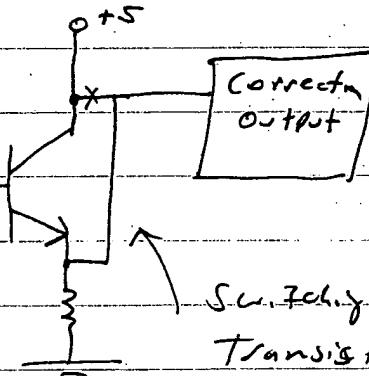
So all we need is an adjustable Force Sensor,  
could be Load cell or simply a micro switch

one spring



Modified  
Fisr Scale

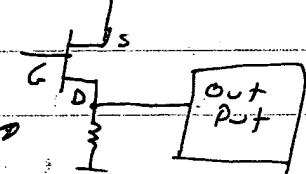
5V



would work  
Use a FET

Use supply or  
dog collar.

H/I Impedance  
Low leakage



Read & Understood by

Rahul Trivedi

Abdul

(6)

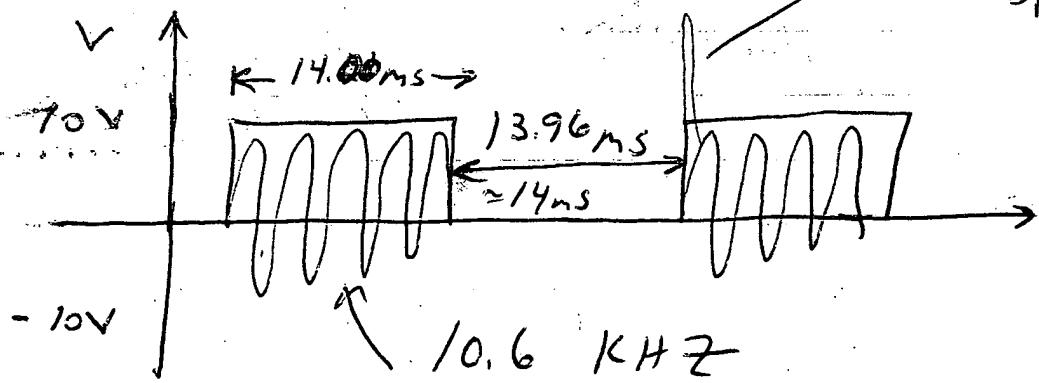
1-10-98

Today I investigated my  
Dog Guard Transmitter.

They have 2 system.

- 1) 7.45 KHz
- 2) 10.65 KHz  
10.8 KHz

my 10.65 KHz system is duty  
cycled such that he see speaker



$\approx$  6 "rings"  $\approx$  155ms

Chips inside X-mitter: LM556CN LM3900N P1602AB SPI  
M9702 FET

$C_9 = \frac{101}{401}$   $C_7 = 47\mu F$   $C_8 = 10\mu F$

$C_6 = 47\mu F$

SUN

so  
this

16

BEST AVAILABLE COPY

mon

GP

7

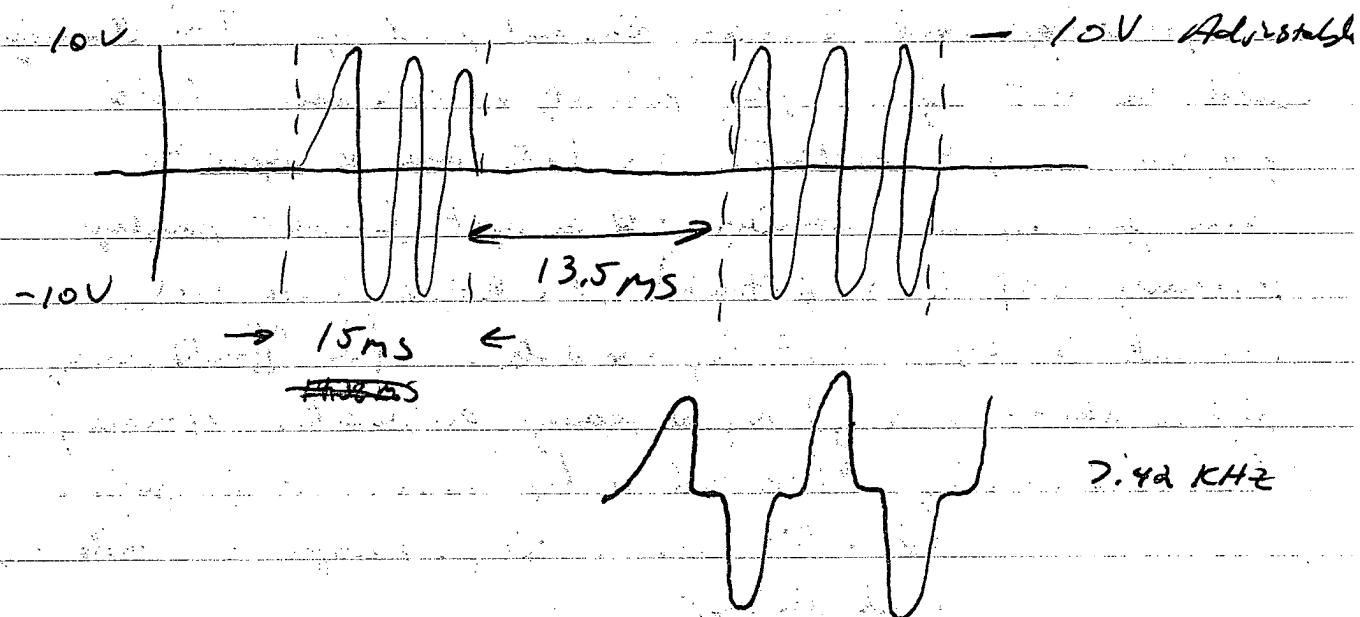
6

6

SUN Jan 18 98

Had my Dog Seward x-mitter charged to 7.45 kHz  
so that Buzz's collar would work at Cissy's House.  
His collar was also adjusted.

X-mitter waveforms. Look Bad



MON Jan 19, '98

According to A paper at the TRB conference,  
GPS is possible to measure down to the mm range.

Incorporate this into a collar that does not need a  
wire. Simply program the coordinates. One could  
walk the boundary (or drive) and let a programme

Actually load the coordinates in to the system.

(8)

Wed Jan 21 1998

3-6

We could use the radio system V1-250 Shuts  
 Coil and integrate it with the collar and the GPS system. The  
 antenna and collar w/ GPS with the shock and a small alarm could  
 be one piece. The audible alarm could be a short boundary (10m)  
 and the shock at say 2 meters. Both alarms could be offset  
 by different GPS. The antenna could be a mini-type antenna/passive  
 or maybe a loop around the collar. Beam must point up. The Boundary  
 could be set up by a laptop, palm top, or off screen. Could  
 program X Y Z coordinates. Coordinate could be input by  
 hand off a map too. (Coordinates could be input to convert Boundary  
 to boundary (keep dog out of street)). A Call BACK locator could  
 be used to get lost dog coordinates. (a different mode,  
 A base station (station) may be necessary on the site. A boundary  
 with a boundary could be used to keep animal out of garden.  
 - need to find low power circuit for prototype or build one.  
 - Check the "aer"  
 - Probably best for Large animal Containment

1-28-98

Motorola, Sirf, Gars, trimble radio system

2-10-98 Been getting parts from Animal Containment off the net

Could also use Velocity prediction in algorithm. Use Velocity  
 to calculate expected time-distance to boundary.

7-7-98 Contacted Motorola for parts for GPS Dog collar

3-6-99 -

PP-86-5

### Low Cost Magnetic Dog fence.

Instead of using RF for fencing, use a very small DC current loop and an anisotropic magnetoresistive sensor. Here, we detect the  $\vec{H}$  field produced by the current loop.

(Still working & collecting information about)  
GPS XYZ Dog fence.

ATTRIBUTES -  
Low power (Battery operated + timer)  
To investigate  
Spatial Resolution (not function of angle)  
Cheap

Could possibly modulate the DC field and obtain Dog Head orientation from Earth mag field and to correct for orientation if needed.

Could also use passive system where Iron stakes are deeply driven into soil at the boundary. Detect fence status. Possible problems w/ other iron or metal pipes in the area. STATES could keep dogs out of garden areas.